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ABSTRACT

Compiled from responses to a survey of 36 universities offering doctorates in rhetoric, composition, language, or technical communication, and updated using research and dissertation indexes and bibliographies, this bibliography summarizes doctoral research in technical communication since 1975. The 35 titles deal with a variety of topics, including the following: (1) the composing processes of six male college freshmen enrolled in technical programs; (2) integrating the academic world of technical communications with the commercial world; (3) the literature and basic issues in technical writing curricula and teaching methods; (4) writing skills in community college vocational-technical programs; (5) the design and evaluation of a course in technical-occupational writing for two-year college students; (6) exploration of cognitive styles among skilled and unskilled writers in a technical writing class; (7) the rhetorical contexts for writing in two college chemical engineering courses; (8) cognitive-field implications for the teaching of technical writing to nontraditional students; (9) designing a master of arts program in professional writing for employed adults; (10) the effects of cooperative peer review on college students enrolled in required advanced technical writing courses; (11) factors affecting the usefulness of flowcharts and other formats for computer programs; (12) professional and experienced writers revising and editing at the computer and with pen and paper; (13) written communication at the managerial and professional/technical levels; (14) teaching technical writing students to revise and proofread; and (15) revision practices of professional writers. (HTH)

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Technical Communication:

Abstracts of Doctoral Dissertations Published in Dissertation Abstracts International, January 1975 through December 1983 (Vols. 37 through 44).

Compiled by Phil Murdock

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This bibliography summarizes doctoral research in technical communication since 1975. Abstracts were solicited in response to a letter survey of thirty-six universities offering doctorates in rhetoric, composition, language, or technical communication. Updates to the original survey were made by checking the indices and bibliographies of Research in the Teaching of English, Research in Education, Dissertation Abstracts International, and Comprehensive Dissertation Index.

The bibliography is modeled on the ERIC/RCS bibliographies and is intended to encourage ERIC to begin abstracting dissertations in technical communication.

Ordering information for the dissertations is found at the end of the bibliography.

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THE COMPOSING PROCESSES OF SIX MALE COLLEGE FRESHMEN ENROLLED IN TECHNICAL PROGRAMS

Order No. 7904775

BECHTEL, Judith A. Blackburn, Ed.D. University of Cincinnati, 1978. 208pp.

Six male college freshmen enrolled in technical programs were selected from composition classes at the Ohio College of Applied Science (OCAS) on the basis of scores on the Verbal Reasoning subtest of the Differential Aptitude Test (DAT). Three from regular Freshman English, designated as the high group, (HG), scored above the 85th percentile. Three from Remedial English, designated as the low group (LG), scored below the 55th percentile. These six students were videotaped while writing regular class assignments--two summaries and two essays.

From among the 24 compositions written, nine were selected for videotape analysis. These nine represented the total effort of one subject (his four compositions) and one essay from the other five subjects. Detailed descriptions of the subjects' behaviors and taxonomies of the strategies they used were incorporated into a model of process style which depicted the following graphically for each subject:

1. Proportions of words produced in pre-writing, writing, revising, and copying,
2. Alternations of stages of writing,
3. Rate of production,
4. Percentage of total word production that made up the final copy,
5. Proportions of mid-sentence pauses and written-over words,
6. Number of kinds of focus of attention,
7. Number of kinds of changes made,
8. Number of kinds of nervous accompanying behaviors,
9. Number of words in the final copy,
10. Amount of time taken to write the composition.

To establish the effectiveness of the various process styles, three outside evaluators used the holistic method of ranking to judge not only the compositions of the six subjects, but also those written by their classmates for the same assignment.

A profile of each subject included the following: (1) a description of his process style, (2) the rank assigned his finished composition by the outside evaluators, (3) his scores on two standardized tests (the DAT and the Rosenberg Self-Esteem Scale) and two nonstandardized measures (an Attitude Inventory and a Language Experience Inventory), (4) his performance in relation to his classmates on all of the above, and (5) comments made by the subject while composing and during an audio-taped interview with the investigator.

The methodology used in this study, including the preservation of the chronological order of writing on videotype and the development of a tally sheet for recording observed behaviors, proved to be sensitive to many aspects of the composing process. Although no ideal writer emerged, certain traits distinguished effective writers from ineffective ones. These included: (1) focus on organization and rhetoric instead of mechanical accuracy, (2) low proportion of crossed-out and written-over words, (3) reliance on spelling strategies other than sounding out words, (4) ability to shift perspectives so that creating and proofreading became truly separate activities, (5) reliance on intuition rather than rule applications in proofreading, (6) an understanding of the extent of elaboration expected of academic writing, and (7) ability to think logically rather than by association. Each of these traits, however, exists in relation to others in an individual writer, and it is the whole constellation of interacting traits that determines effectiveness rather than the manifestation of certain specific behaviors or attitudes.

In addition to these findings, the data suggested that summaries require less pre-writing and revising than essays do and that differences in performance may result from differences in schooling and motivation as well as differences in testable verbal skill. Generally, these subjects worked hard, but were neither inspired by the need to resolve a problem through writing, nor open to the satisfactions to be gained from making discoveries during the process of writing.

A DESCRIPTIVE AND COMPARATIVE STUDY OF COHESIVE STRUCTURE IN TEXT MATERIALS FROM DIFFERING ACADEMIC DISCIPLINES

Order No. DA8324476

BINKLEY, MARILYN ROTHMAN, ED.D. *The George Washington University*, 1983. 178pp. Director: Ruth Irene Peterson

The study was designed to determine whether there are characteristic distributions of cohesive ties within writings from various academic disciplines, and if so, whether these patterns differ among disciplines. The data were collected from 10 sample paragraphs randomly drawn from 10 textbooks at the undergraduate and graduate levels from five disciplines: physics, biology, economics, political science, and history. Using Halliday and Hasan's method of cohesive analysis, a frequency count for each sample was made.

The counts in each discipline were grouped in two ways, by structural class and by functional category, so that a description of frequency of types of ties could be made. Chi-square tests at the $p < .05$ level were conducted within each discipline to establish its degree of homogeneity. The total counts for all disciplines were compared with each other to determine whether the distribution of ties is influenced by the discipline.

The findings indicate that there is homogeneity within each field when the frequency of ties is grouped by structural categories. When grouped by functional categories, there is homogeneity within biology and physics whereas the other disciplines show greater variability. In comparisons among the disciplines, the chi-square tests indicate that there are significant differences in the distribution of ties that could be attributed to the influence of academic discipline.

A secondary line of research tested for the influence of author's style in the distribution of cohesive ties. Though there is insufficient evidence, it is likely that there is no relationship.

Results indicate that the disciplines of physics and biology rely heavily on the use of "the" and the repetition of lexical items, giving a high degree of clarity and formality to the texts. Economics and political science use pronomials more frequently than demonstratives and have a more even distribution between repetition of the same lexical item and synonyms. History uses collocation, synonyms, and repetition of the same lexical item, indicating a greater dependence on the prior vocabulary knowledge of readers.

INTEGRATING THE ACADEMIC WORLD OF TECHNICAL COMMUNICATIONS WITH THE COMMERCIAL WORLD OF BUSINESS AND INDUSTRY

Order No. 8116188

BROCKMANN, ROBERT JOHN, JR., A.D. *The University of Michigan*, 1981. 184pp. Chairman: Dwight W. Stevenson

The general problem addressed by this dissertation is that technical communications teachers have not explicitly examined how the commercial endeavors of business and industry can be successfully integrated with their academic endeavors. Specifically, teachers have not sufficiently examined how best to use the integration techniques of mail surveys, advisory boards, case problems, or internships. This dissertation examines each one of these techniques and suggests effective ways of using them. This dissertation also examines the daily classroom pedagogy of technical communications in the light of these techniques.

Essay One, on mail survey research, concludes that surveys have been repetitive in their findings and seriously limited in their coverage. Only by developing new types of questions to cover inadequately studied areas will future researchers using this technique be ale to extend their knowledge.

Essay Two, on advisory boards, describes why programs and classes should have advisory boards. The essay also explains specifically how an advisory board can be successfully established and maintained.

Essay Three, on the case mehod, gives practicing teachers the techniques of this method by: Defining the discrete features of cases in technical communications, and Providing a comprehensive annotated bibliography.

Essay Four, on internship programs, points out that such programs are currently run in a rather loosely organized fashion and suggests ways to make them a more rigorous educational enterprise.

Essay Five applies the perspective gained through using the integration techniques described in the other four essays, and demonstrates that technical communications' pedagogy in some areas is insensitive to students' career needs. Specific problem areas are described and appropriate remedies are offered.

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TECHNICAL WRITING CURRICULA AND TEACHING METHODS: A REVIEW OF THE LITERATURE AND AN IDENTIFICATION OF THE BASIC ISSUES Order No. 8105502

CHATTERJEE, SUCHENDRAN SH[illegible]TTYA, PH.D. *George Peabody College for Teachers of Vanderbilt University*, 1980. 175pp. Major Professor: Warren I. Titus

The major purpose of this study is to review the literature in the field of technical writing for engineering students and to identify seven basic issues crucial to the teaching of technical writing as revealed by that review.

The first chapter of the study focuses on an overview of technical writing in American schools. Some allusions are made to the importance of technical writing today and the lack of significant research in the teaching of technical writing. The chapter includes a brief history of technical writing and its place in industry. The limitations and procedures of the study are also discussed.

In the second chapter, the seven basic issues are identified: (1) What is technical writing? (2) What is the need to teach technical writing? (3) What are the problems in the teaching of technical writing? (4) At what academic point should technical writing be taught? (5) What communication problems does an engineering student face? (6) What are the problems in the evaluation of technical writing? (7) What are the demands of industry on the technical writer? The contributions of some of the senior professors of technical writing in industry and the issues facing the teacher and student of technical writing are discussed.

The third chapter presents definitions of technical writing and the rationale behind the teaching in the field. Various factors relating to the formulation of definitions are discussed as well as the importance of the teaching of technical writing.

The fourth chapter presents specific problems in the teaching of technical writing to engineering students. As a subject about which the English teacher probably knows very little, engineering poses a strain on the English major teaching technical writing. The chapter attempts to identify the strains and review the solutions.

The fifth chapter discusses a long-standing controversy in the field of technical writing: At what academic point should it be taught? Underlying theories are presented along with opposing viewpoints.

The sixth chapter presents specific problems in engineering communication and in the evaluation of the writing of engineering students. Psychological approaches are discussed as are various testing alternatives.

The seventh chapter is on the technical writer and the demands made by industry on the writer. A view is given of the practical writing situations the student will face in the technological fields, providing a rationale for the range and scope of assignments in the theoretical world of the classroom.

In the eighth chapter, summaries and conclusions are presented. Emphasis is on the positive aspects in technical writing. The study also attempts to provide possible background for further research in the field.

In providing alternatives for teaching technical writing to engineering students, the study aims at an improvement in the quality of the English teacher, the textbooks used, and the approach to the entire field. Ultimately, it is hoped, this work may enhance mutual understanding between technical and English teachers.

A TECHNICAL COMMUNICATION PROCEDURE TO PRODUCE ATTITUDE CHANGE THROUGH THE USE OF SCIENTIFICALLY DESIGNED MESSAGES

Order No. DA8210661

CRICK, RANDAL CARTER, PH.D. *Rensselaer Polytechnic Institute*, 1981. 215pp. Adviser: George A. Barnett

Over the past few decades, many specialists in communication and rhetoric have become interested in the rhetorical dimensions of science. Not as many have tried to determine how the effectiveness of a rhetorical appeal to an audience might benefit from the inclusion of a scientific dimension. This thesis tests experimentally whether scientifically designed messages based on ratio-scaled measurements of an audience's perceptions can help explain, predict and conrol changes in that audience's attitude toward a particular object, idea or practice.

Such a technical communication procedure would be especially valuable to the fields of rhetoric, the diffusion of innovations, and market research, since each includes researchers who study how to affect a group's behavior by influencing the attitudes of its members. Using the metric multidimensional scaling program and related procedures known as the Galileo system, the author measured the attitudes and beliefs of a sample of a student population toward beers and their attributes. Based on this measurement, the automatic message generator (AMG) within the Galileo system suggested theoretically effective messages that should have improved student attitudes toward one of the beers. Four of these messages were administered to different groups in an experiment that used a post-test only design.

The results showed no improvement in student attitudes toward the targeted beer beween the first measurement of the sample population and the measurements which followed the messages. The most likely explanation for the failure of the research hypotheses was a new advertising campaign by one of the beers in the study. This campaign, which appeared after the pretest measurement of attitudes and before the experiment, relied heavily on one of the concepts also used in the AMG messages. Consequently, further research is necessary to evaluate the theoretical assumptions of the AMG.

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COMMUNICATION AND PERCEIVED PERFORMANCE IN ORGANIZATIONS: A NETWORK ANALYSIS

Order No. 7900244

DIXON, Thomas Clifford, Ph.D. Rensselaer Polytechnic Institute, 1978. 222pp. Supervisor: Robert Krull

Although research into organizational communication has been proceeding for at least thirty years, few people have attempted to use communication data to index more general organizational processes, and in this way place organizational communication within the framework of an overall theory of human behavior. My purpose was to examine the antecedents and consequents of the communication which individual members of an organization engage in on the job from psychological, sociological, and social psychological perspectives. I first proposed a distinction between task and social communication based upon instrumental/expressive, task/maintenance, and other dichotomies. Next, I used task communication and other data to index the abstract variables of causal models which linked Disposition State and Social Status to Work Effort, and then Work Effort, Acceptance of Department, Acceptance of Organization, and Reliability to Performance. Finally, I used social communication data to index sociocultural support in a causal model in which Dispositions for Affiliation and Autonomy were linked to Sociocultural Support, and Sociocultural Support to Organizational Cohesiveness. The models accounted for 31 percent of the variance in the ratings of immediate supervisors and 87 percent of the variance in the ratings of division heads. However, predictions relating disposition for affiliation to social communication to organization cohesiveness were not supported. In other words, the widely made theoretical distinction between instrumental/expressive communication found no empirical corroboration. The investigation was carried out at the Community Hospital of Schoharie County, Cobleskill, NY, where employees completed two questionnaires. The first obtained data upon personality manifestation in a work setting, attitudes towards use of communication as a management tool by immediate and higher level supervisors, and attitude towards the organization; the second network questionnaire asked respondents for the frequency and value of both task and social communication. Additionally, from organizational sources, records of hourly pay rates, utilization of sick leave and years of education were acquired. Six indices were constructed from the networks, the average level of outgoing and incoming frequency and value choices, and the product interaction of outgoing and incoming frequency and value. These ratios were taken as an index of work effort, but only one, average value of incoming value choices, was significantly correlated with both the proposed antecedents and the proposed consequent. Acceptance of Department was indexed at the departmental level by openness of communication between employee and supervisor and attitude to the supervisor as a communication manager, and at the divisional level by supervisor communication and immediate supervisor ratings. Acceptance of Organization was indexed by importance of written rules and regulations and attitude to management use of communication. Reliability was indexed by attendance and desire to remain with the organization. Regression analysis indicates a tendency for the supervisor at the work face to value an employee who has initiative, is looked to for advice by others in the formulation of work plans, and who is open in his/her communication with the superior. On the other hand, the divisional supervisor values most highly the employee who recognizes the bureaucracy of the organization and is reliable, although also seeing open communication with the immediate supervisor as important. The credence that can be attached to the lack of support for the instrumental/expressive distinction depends upon the validity of the network data. In order to minimize response set, names of organization members were placed in the middle of the page, with task and social communication entries being made on left and right sides. Different scales were used for frequency and value. The distinction has found empirical support mainly in small group research, but may not persist in larger groups.

WRITING SKILLS IN COMMUNITY COLLEGE VOCATIONAL-TECHNICAL PROGRAMS: A MODIFIED DELPHI APPLICATION

Order No. 8124716

DUSZYNSKI, TIMOTHY JOSEPH, D.A. *Illinois State University*, 1981. 239pp.

This research was concerned with identifying writing skills that vocational-technical students should develop during their community college studies and determining if any of these skills were relevant to the student's career after he completed his technical program. A listing of sixteen discrete writing skills was incorporated into both rounds of a two-round modification of the Delphi technique, the research methodology employed in this investigation. Members of the Wabash Valley College Vocational-Technical Advisory Council served as the responding population who rated each writing skill on a five-point ability and relevance continuum during each round.

An analysis of the data gleaned from the responses of 101 participants of both rounds of the study determined that vocational students should be proficient in each writing skill by the time they complete their programs and that each writing skill has at least some relevance to the working world. From the analysis of data the author concludes that: (1) Writing skills involving business correspondence and clear, concise prose used in business situations are considered to have a great deal of importance in the business world and should be studied and mastered by vo-tech students in anticipation of their using these writing skills on the job. (2) Writing skills not normally associated with the business world are considered to have minimum importance for vocational students. (3) Spelling correctly is considered to be of primary importance in school and on the job most likely because of the negative impression caused by incorrect spelling.

A statistical appraisal of the change in individual responses between rounds of the study indicated that although some significant change was indicated for four of thirteen subgroups analyzed, there was generally no significant change in responses between rounds for most participants. From the statistical analyses of these results, the author concludes that: (1) A distinct minority of participants were influenced by their peers as indicated by the slight degree of change in response between rounds. (2) Most participants had a firm idea of the kinds of writing skills that vo-tech students should learn in school and of the kinds of writing skills that are relevant to the job. (3) The modification of the Delphi technique that was used in this study is an appropriate research methodology to involve members of the business community in a shared curriculum input exercise.

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A STUDY TO DETERMINE ESSENTIAL COMPETENCIES FOR TECHNICAL WRITING STUDENTS IN THE TWO-YEAR COLLEGES OF THE SOUTHEASTERN STATES

Order No. DA8308509

EASOM, ROGER D., ED.D. *Memphis State University*, 1982. 181pp.

Purpose of the Study. Technical writing has become an integral part of the two-year college curriculum and is now a requirement in most associate degree technical programs. Informal research indicates that course requirements vary significantly throughout the Southeastern region. This study sought to determine the essential competencies or skills in technical writing required of technicians by surveying noted authorities, two-year college instructors, employers of two-year college students, and graduates of two-year college technical programs.

Procedure. Questionnaire surveys were made of four groups comprised of 433 subjects: 73 authorities, 91 instructors, 109 employers, and 160 graduates. The subjects rated fifty-five competencies or skills in technical writing for two-year college students. The responses were used to analyze the communication needs of employees as viewed by academicians, professional writers and editors, and personnel from business and industry. Data from 255 usable returns were processed by the Memphis State University computer using the Statistical Package for the Social Sciences (SPSS) and were interpreted through tables and comparative analyses.

Findings. The four groups selected thirty-three items as essential competencies or skills for two-year college students. The respondents rated twenty-two items as either not applicable or nonessential. For most of the fifty-five items tested in the survey, the groups were in overall agreement in rating items as essential or nonessential. However, concerning the disputed items, responses from authorities and instructors were similar, while responses from employers and graduates were alike. This trend indicated that academicians might not fully understand some of the communication requirements of business and industry. Most of the items that resulted in disagreement among the groups dealt with report writing competencies or skills which were considered nonessential by employers and graduates.

Conclusion. The technical writing curriculum in the two-year college needs to be refined through instructors' maintaining closer contact and communication with business and industry. Instructors can better meet the needs of their current students by surveying former students and their employers.

THE DESIGN AND EVALUATION OF A COURSE IN TECHNICAL/OCCUPATIONAL WRITING FOR TWO-YEAR COLLEGE STUDENTS

Order No. DA8315874

GASARCH, PEARL, D.A. *Carnegie-Mellon University*, 1983. 386pp.

One of the purposes of this study was to design a writing course for two-year college students who had completed Freshman Composition which would prepare them for the writing requirements of the working world. The other purpose of this study was to evaluate this experimental course by comparing it with a more traditional post-Freshman Composition course taught to students at two-year institutions.

I taught two sections of this course, one which used the more traditional approach, and one which used the experimental curriculum. A colleague did the same. Consequently, four classes, two experimental and two control groups were used in the study.

The work was evaluated by colleagues, who used especially designed rating sheets to blind-mark the concluding paper each student in each of the classes wrote at the end of each of the four units of instruction. The four units, which included the resume, the letter, the report and the research report, were also evaluated by students in all four classes. They evaluated each unit anonymously when the instruction for that unit came to an end. The rating sheets identified specific characteristics desirable for each of the four types of writing. The results of the blind-marking are reported numerically; the student evaluation results are reported narratively.

The students in both of the experimental groups received higher overall scores than did the students in the control groups. The unit which demonstrated the greatest difference between the two sets of groups was the letter-writing unit. The report-writing unit demonstrated the smallest difference between the groups. The student evaluations indicated that students in the experimental groups were more favorable to the units than the control group students, although the control group students wrote that they found the topics of value of interest.

Because of the results which the experimental curriculum, and particularly, the letter-writing unit gave rise to, there is a reasonable basis on which to conclude that the combination of topics, materials, and pedagogical techniques used are of value and further research using elements of this study might be fruitful.

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A COMPARISON OF PROFESSIONALS' RESPONSES TO SELECTED ERRORS OF USAGE AND ITEMS OF DISPUTED USAGE IN FORMAL WRITTEN ENGLISH

Order No. DA8414819

GEILKER, NEITA FROHMUTH, PH.D. *University of Missouri - Kansas City*, 1984. 161pp.

This study compared the responses of five groups of professionals toward 100 errors or items of disputed usage: The professionals were engineers, attorneys, human resource development personnel (HRD), high school English teachers, and college English teachers. Each group contained approximately 80 respondents.

The purpose of the research was threefold: to investigate differences in the responses of the professionals, to investigate the relationship of age, sex, and hours of English language study to the responses, and to rank the items according to their level of acceptability.

Respondents were asked to indicate on a scale of 1 to 5 how much each survey item bothered them.

For analysis, items in the survey were classified into four major categories--*Punctuation*, *Sentence Structure*, *Grammar*, and *Word Choice*--and into 22 descriptive subgroups. A factor analysis supported the subgroup structure for all major categories except *Word Choice*. Consequently, *Word Choice* analyses did not include subgroups. Analysis of variance and t-tests were the primary statistical procedures employed.

On a continuum from "Does not bother me" to "Bothers me a lot," the following professional rank order was established for each major category: engineer, HRD, attorney, high school English teacher, and college English teacher. Over one-third of the means compared were statistically significantly different.

Hours of English language study did not correlate significantly with total survey responses. For the total population, correlation of age and responses was low but statistically significant for two major categories: *Grammar* and *Word Choice*.

Females' scores were consistently higher or more conservative than males', and, for the total population, were statistically significantly higher for every major category of usage. When analyzed by profession, college English teachers were the only group where female means were statistically significantly higher, although for high school teachers the difference was close to significant.

The following rank order from least to most offensive was established for the four major categories of items: Word Choice, Grammar, Punctuation, and Sentence Structure.

ORGANIZATIONAL AUDITS: AN INVESTIGATION INTO THE USE OF FRACTIONATION SCALES TO MEASURE COMMUNICATION CHANGE OVER TIME IN GOAL DIRECTED SYSTEMS

Order No. DA8308234

HAMLIN, DONNA MARIE, PH.D. *Rensselaer Polytechnic Institute*, 1982. 421pp. Adviser: George A. Barnett

This thesis explores the application of fractionation scaling to the measurement of organizational communication processes over time. Results indicate that such scaling techniques can be used to construct a precise, reliable and useful diagnostic communication audit. This new communication audit was used twice at two multinational businesses to evaluate the effects of manipulated communication programs over two years. It represents the first study in which fractionation methods have been used to measure organizational change over time.

The audit can be a valuable addition to more than 40 years of organizational communication research, virtually all of which is based on the two fundamental assumptions that communication: (1) projects itself orthogonally, and (2) is a process which involves a substantial number and variety of testable variables. Auditing methods, designed to track the use of such variables, are traced from the 1951 efforts of Jacobson and Seashore to the 1982 work of Barnett, Hamlin and Danowski. This latter study is used as the prime foundation for 18 hypotheses which examine whether or not fractionation methods can be used successfully to prescribe actions that would maximize the chances of an organization attaining its goals.

After variable reduction was achieved through maximum likelihood factor analysis, the hypotheses were analyzed with t-test comparisons and Pearson correlational coefficients. Reliability of the fractionation scores was tested with Cronbach's alpha procedures.

Results have important implications for organizational planning and research in emphasizing the fundamental role that communication strategies play in organizational performance. Of particular interest is the conclusion (supported by results from two hypothesis tests) that the more information employees receive, the more they want. Fractionation scales were shown to have reliability coefficients considerably higher than those for traditional Likert-scale procedures--a clear-cut indication that fractionation methods are not too cumbersome for employee surveys.

It is recommended that organizations incorporate regular communication audits as part of their management program planning; it is suggested that a communication audit system (using formative and summative evaluations with precise fractionation scaling techniques) can make positive contributions to the quality of research in organizational communication.

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THE MULTI-IMAGE USER: A DIFFUSION OF INNOVATION INVESTIGATION INTO THE ADOPTION AND USE OF MULTI-IMAGE COMMUNICATION TECHNIQUES

Order No. 7903212

HARKINS, Craig, Ph.D. Rensselaer Polytechnic Institute, 1978. 203pp. Supervisor: George A. Barnett

Multi-image is a complex and innovative communication technique, the use of which is spreading rapidly among professional communicators. This phenomenon exists despite evidence that relatively little research indicates that multi-image presentations impart information more effectively than more traditional methods. This investigation attempts to assess the complex of personal and organizational traits which lead communication professionals (e.g., educational technologists, audio-visual specialists, industrial photographers, technical writers) to adopt the multi-image mode as a vehicle for message transmission.

Six hundred communicators, randomly selected from lists provided by two professional societies (Association for Multi-Image and Society for Technical Communication) and two United Business Publication magazines (Audio-Visual Communications and Industrial Photography), were surveyed with a 42-question instrument, designed to yield empirical measures of 14 variables used to develop 13 testable hypotheses of an overall theory, which combines various theoretical perspectives from media and diffusion of innovation traditions. Although theorists such as Suzanne Langer and Marshall McLuhan have postulated on the differences between visually-oriented media and discursive media such as print, and the effects on different age groups; Donald Perrin has formulated an overall theory of multiple-image communication, in which simultaneity and information density are key variables; and Edgar Dale has suggested that message complexity should be an important consideration in media selection processes, there has not been any effort to look at the direct effects that variables such as these have on multi-image users. This study, then, attempts to fill that void by examining media variables within the context of diffusion of innovation social models, of the type described by Everett Rogers with Floyd Shoemaker, and George Barnett's associational model for the diffusion of complex innovations.

Results of this (N = 209) study indicate that: (1) Expo 67 had a major influence on the adoption of this innovation; (2) personal -- as opposed to organization -- characteristics have the most influence on the decision to adopt multi-image communication techniques; (3) multi-image has more appeal to younger (i.e., in relation to a mean of 40 years old) professional communicators than older ones; and (4) the ability to observe a great many multi-image presentations and to associate with multi-image users has the most effect on multi-image usage.

It is suggested that this study can be used as a base for tracking future patterns of multi-image adoption and use. Increased attention and focus on two organizational variables (job satisfaction and collective decisions) is recommended for future study.

EXPLORATION OF COGNITIVE STYLES AMONG SKILLED AND UNSKILLED WRITERS IN A TECHNICAL WRITING CLASS

Order No. DA8317166

HELD, JULIE ANN STUSRUD, PH.D. *Indiana University*, 1983. 253pp. Chairperson: Vernon H. Smith

Recent research in composition has focused on the writing process. Since the composing process of a writer reflects that writer's method of dealing with information, an investigation of the learning styles of writers might provide some insight into their composing processes. This study involved 175 students enrolled in a technical writing class. Writing samples were collected from each student and evaluated by writing teachers. In addition, the students took the Myers-Briggs Type Indicator. The results from the MBTI and the writing samples were matched and Chi-square tests were performed on the data to determine if learning styles are related to writing ability. Four hypotheses were tested: (1) The students in the sample will have a significantly larger representation of Sensing preferences than Intuitive preferences than would be found in the general college population. (2) The students who express a preference for Sensing will produce more "Average" and "Poor" papers and fewer "Good" papers than the students expressing a preference for Intuition. (3) The students who express a preference for Extraverted-Sensing will produce more "Average" and "Poor" papers and fewer "Good" papers than those expressing a preference for Extraverted-Intuition, Introverted-Sensing, and Introverted-Intuition. (4) The students who express a preference for Perception will produce more "Average" and "Poor" papers and fewer "Good" papers than those expressing a preference for Judging.

The first three hypotheses were rejected. The fourth hypothesis was not. The students who preferred Perception wrote more papers evaluated "Poor" or "Average" and fewer papers evaluated "Good" than the students who preferred Judgment. The difference was significant at the .05 level. Additional type variables combined with Perception produced even more significant differences in apparent writing ability: NP vs. NJ, significant at the .01 level; NFP vs. STJ and NTJ, significant at the .02 level. If these correlations hold true in other research studies, then writing teachers, by studying the characteristics of the perception preference and its combinations with other preferences, may gain some additional insight into the composing process of unskilled writers.

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WRITING IN ACADEMIC SETTINGS: A STUDY OF THE RHETORICAL CONTEXTS FOR WRITING IN TWO COLLEGE CHEMICAL ENGINEERING COURSES Order No. DA8409508

HERRINGTON, ANNE JEANETTE, PH D. *Rensselaer Polytechnic Institute*, 1983. 403pp. Adviser: C. Lee Odell

This study investigated the context for writing in two college chemical engineering classes: a laboratory class and a process design class intended to simulate the design problems and writing demands of industry. Consistent with the rhetorical and social theory that informed this study, each class was viewed as a community for reasoning and writing. While the study focused on these two classes, it had a broader aim: to contribute to our understanding of the purposes writing might serve for learning in any discipline and the ways teachers create classroom contexts for realizing those purposes.

The following questions were explored: (1) How do students and teachers perceive the contexts for writing in these classes, specifically, what issues are addressed? what writer and reader roles are assumed? and what pragmatic purposes does writing serve? (2) What lines of reasoning are used in the reports written for each class, specifically, what claims and warrants are used?

The study used a combination of quantitative and qualitative methods: a survey of all students and teachers participating in these classes, open-ended and discourse-based interviews with ten students and two teachers, observation of these classes, and text analysis of claims and warrants.

The findings indicate that students and teachers do perceive these two classes to represent two different communities: issues, writer and reader roles, and purposes vary. Further, lines of reasoning used in the texts vary. The findings also indicate problems that arise within a particular class when students do not perceive a real issue for reasoning and writing and when students and teachers do not share the same perception of roles and purposes.

The study gives us some insight into the diversity of contexts for writing in college classes. Further, it illustrates two quite different educational purposes that writing might serve in introducing students to a given disciplinary community: one, to teach students basic concepts and lines of reasoning of that discipline, and two, to prepare them for professional roles associated with that discipline. Finally, the findings suggest ways teachers might go about creating classroom contexts conducive to realizing those purposes.

COGNITIVE-FIELD IMPLICATIONS FOR THE TEACHING OF TECHNICAL WRITING TO NON-TRADITIONAL STUDENTS

Order No. 8102379

HERTZ, VIVIENNE LUCAS, PH.D. *Southern Illinois University at Carbondale*, 1980. 178pp. Major Professor: Paul M. Morrill

This study undertook to examine and assess a process of instruction based on cognitive-field theory in the teaching of technical writing to adult students enrolled in an extended campus program. Central to the process were course elements organized according to a learning theory that recognized personal goal setting and creative problem solving. For review and analysis course materials were sent to a reactor panel of technical writing teachers, curriculum planners, authors of related texts, and technical editors from industry.

Research questions addressed were: Is self-direction an appropriate emphasis, especially with adult students? Can cognitive-field learning theory serve as a logical theoretical base around which to structure technical writing teaching? Should creative problem solving be incorporated by reflective teaching into specialized composition courses, i.e., technical report writing? Must technical writing stress only prescriptive teaching, more traditional formats, and analytic thinking? Would professional counterparts use these course materials in their own teaching?

The emphasis of the study was on the individual students as learners. Course materials, developed from a theoretical model based on Kurt Lewin's field force analysis, were sent to a representative panel of teachers of technical writing and directors of technical communications programs for their review and reactions. The materials stressed the role of learners in defining their hoped-for learning outcomes. Implicit concepts were goal setting, reflective teaching, and problem raising and solving.

The review of the literature examined current research on the teaching of composition: some reports related to learning theory, others to classroom implications from recent research in the field. Special needs of the adults students were also explored. Parallel readings were those which defined technical writing, offered sample syllabi, and made assignments for classroom activities and problem solving exercises.

The course materials were divided into five major areas: self-assessment, creativity, critical thinking, reports, and skills. Self-assessment stressed the relationship of the individual's valuing of the writing experience, sense of self-confidence, work habits, and competencies with use of the language. Creativity examined methods to stimulate individual and group problem solving skills for specific report topics and organizational formats. Critical thinking offered opportunities for students to become aware of distinctions among qualities of data, develop reasoning skills. The reports section provided activities to develop formats from examples from work settings, examples of typical report structures, and varying methods to evaluate report writing (self, peer, technical advisor, instructor). The skills section included activities that stressed sentence-combining and eliminating given problems such as nominal style.

The following conclusions were reached--that the initial intuitive perception of working with adult students drawing attention to their stated goals and personal course objectives was appropriate; that drawing upon individuals' environments and group interaction in generating report topics and contents is justified; that reflective teaching, while not universally accepted by teachers of technical writing, is viable as a teaching style; that, based on a limited sampling, many in business or industrial environments view technical writing as a learned skill; and that, for cognitive-field theory to be more universally acceptable in technical writing teaching, related materials would need either more background information and philosophical justification, or little or no mention of the psychological base.

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POPULAR SCIENTIFIC DISCOURSE: A RHETORICAL MODEL FOR TEACHING WRITING AND READING

Order No. 8002370

HOPKINS, ROBERT MORRIS, PH.D. *University of Missouri - Columbia*, 1979. 365pp. Supervisor: Ben F. Nelms

Purpose. Two related purposes served as a rationale for the study. The first purpose was to identify through three types of analysis some of the important structural and semantic characteristics of popular scientific discourse. Popular scientific discourse was stipulatively defined as writing by professional scientists intended to inform the layman and the nonspecialist about the methods used and the discoveries made in investigations into the natural sciences. The second purpose was to determine from the analyses whether pervasive structural patterns were to be found. Their existence would be considered a sufficient reason for constructing a conceptual rhetorical model and suggesting methods to aid in the teaching of writing and reading of popular scientific discourse to students in college level technical and scientific writing classes.

The following questions were asked and tentatively answered during the course of the study: (1) What are the major structures which pervade the whole pieces of scientific discourse taken as samples from selected periodicals? (2) What are the organizational structures subsumed under the major structures? (3) Do combination structures result from the major and organizational structures which may help to define and delimit popular scientific discourse? (4) Are there pervasive features occurring within and between sentences which might help to define and delimit popular scientific discourse? (5) To what extent is there variety in organizational patterns and in syntactic units in the samples examined? (6) Do the findings of the study imply that they should in some way be useful in teaching composition? (7) In light of the evidence gathered, what are the most plausible ways that these discoveries might be put to use?

Procedures. Thirty-two periodical articles were randomly selected from *American Scientist, National Geographic, Natural History, Science,* and *Scientific American.* All of the sentences of six randomly selected paragraphs from each article were analyzed, using the tagmemic clause analysis procedures described by Arena in *Linguistics for Composition* (1975).

From the thirty-two articles six were randomly selected for an analysis of larger structures. Gopnik's major structures, described in *Linguistic Structures in Scientific Texts* (1972), and Monroe, Meredith, and Fisher's organizing structures, described in *The Science of Scientific Writing* (1977), served as the basis for a more extensive system of analysis to reveal semantic structures which indicate the principal concerns involved in conducting scientific investigations and reporting those investigations.

Another type of analysis was done to identify cohesive ties between sentences. From five randomly chosen articles no fewer than three sequential paragraphs were selected from each article for the analysis. A simplified version of Halliday and Hasan's methods, described in *Cohesion in English* (1977), was used for the analysis for cohesion.

Selected Conclusions. The tagmemic clause analysis revealed the degree of complexity of the sentences (the average number of clauses per sentence is 2.5). It was discovered that transitive clauses were most extensively used and that passive clauses were infrequently used, accounting for no more than 12 percent of the total number of clauses in all of the samples. It was discovered that of the larger structures Scientific Study and Conclusion structures (defined in the dissertation) occur most frequently. The analysis for cohesion revealed that lexical ties comprise the majority of cohesive ties in the samples.

Recommendations. Because the analyses of the samples reveal that a variety of structures and pervasive features do exist in sufficient numbers to help characterize the genre popular scientific discourse, it is recommended that the student be taught to use the systems of analysis described and used in the present study as aids in composing his own popular scientific discourse.

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AN IDENTIFICATION OF THE COMPETENCIES IN ENGLISH NEEDED BY VOCATIONAL STUDENTS IN THE COMMUNITY COLLEGES AND TECHNICAL INSTITUTES IN NORTH CAROLINA

HOWELL, James Dale, Ed.D.
North Carolina State University at Raleigh, 1976

Supervisor: Dr. Curtis Trent

The major purpose of this study was to identify those competencies in English needed by vocational students in the community colleges and technical institutes of North Carolina when they assume employment. A second purpose was to compare the opinions of administrators, vocational teachers, and English teachers within these institutions as to the relative importance of the competencies for vocational students preparing for trade and industrial occupations. A third purpose was to determine the relationship of respondents' ratings of English competencies and the following variables: type of institution, size of institution, age, sex, length of experience in business or industry, and level of formal education.

To fulfill these purposes a questionnaire, ultimately containing fifty-eight competencies, was created and field-tested. The fifty-eight competencies were compiled from textbooks, previous research efforts, state curriculum guides, and from the opinions of many authorities including professors of education, vocational teachers, and practicing authorities in occupationally related professions.

Questionnaires were mailed to 432 administrators, vocational teachers, and English teachers among the thirty-eight community colleges and technical institutes in North Carolina which were willing to participate in this study. They were asked to rate the importance of each competency. The response rate was 67 percent.

Responses received were ranked by mean score and analyzed statistically using the Spearman Rank Correlation Coefficient and chi square analysis corrected for continuity. The competencies considered to be of high priority were those which respondents thought to be of "considerable" or of "complete" importance to vocational students. The competencies of high priority are listed below.

Rank	Competency
1.	Listening carefully to directions from his superior.
2.	Reading and interpreting written instructions.
3.	Talking with his supervisor effectively.
4.	Reading and interpreting work orders.
5.	Making out a work order.
6.	Reporting orally on his work to his superior.
7.	Responding properly in a job interview.
8.	Explaining problems to others on the job.
9.	Giving oral instructions to others on the job.
10.	Filling out a job application form.
11.	Making out a bill for goods purchased.
12.	Expressing an opinion without being offensive.
13.	Showing conversational courtesy to others.
14.	Reading and understanding items on the bulletin board.
15.	Completing requisitions and purchase orders.
16.	Making a suggestion for improvement to his superior.
17.	Reading and understanding company publications.

A major finding of this study was that respondents did not differ significantly in their ranking of competencies when the responses were categorized according to position, age, sex, education, experience, or type and size of institution. The Spearman coefficients obtained were all .94 or higher. However, the variable, position, was the one most clearly associated with the importance placed on high priority competencies. Two other important findings were that respondents tended to rank verbal competencies high and writing competencies low and that those competencies ranked high were more clearly job-related than were those ranked low.

Order No. 76-28,489, 185 pages.

BEYOND READABILITY: MEASURING THE DIFFICULTY OF TECHNICAL WRITING

Order No. 8004761

HULL, LEON CLINTON, JR., PH.D. *Rensselaer Polytechnic Institute*, 1979. 193pp. Supervisor: David L. Carson

The application of readability formulas to technical writing poses two problems. First, most formulas rely on a generalized measure of word difficulty (number of letters or syllables per word) which makes no allowance for familiarity with a technical vocabulary. These formulas therefore tend to rate technical material as more difficult than it actually is for the intended audience. Second, since traditional formulas employ indices that predict but do not in themselves cause difficulty, they are inapplicable as a tool for improving technical writing.

To be useful to technical writers, a formula should be generally applicable to technical material; that is, it should employ variables that are relatively independent of vocabulary difficulty. A formula for technical writing should also use indices that stand in a causal relationship to difficulty, thus providing writers with an editorial tool for revising their material to make it more readable. The development of a formula for assessing and improving the readability of technical writing was the goal of this study.

The literature on readability indicated that the difficulty of a written message depends in large part on the number and type of syntactic structures used to modify the ideas conveyed in the message. Moreover, the degree of modification appeared to be independent of vocabulary load and a possible cause of difficulty. A syntactic analysis of criterion passages drawn from technical materials identified several indicators of modifier load that have a substantial correlation with textual difficulty.

An empirical study was therefore designed to test the hypothesis that an increase in these indicators of modifier load *causes* an increase in passage difficulty, as indicated by a decrease in reader understanding on a standard cloze test. A second purpose of the study was to verify the value of audience analysis in technical writing by assessing the effect of verbal skill, familiarity, and interest on reader understanding. The subjects were 107 undergraduate students at a major technological institute.

The principal hypothesis dealing with modifier load received some strong support. Test results showed that a 50-percent increase in the density (number) of prenominal modifiers resulted in a significant decrease in scores on the cloze test. Increased prepositional density had no significant effect on reader understanding, indicating that the prepositional phrase could be an acceptable alternative to prenominal modifiers in revising technical material.

The tests also supported the current emphasis on audience analysis. When averaged or aggregated across a set of passages, the three reader variables showed a significant correlation with reader understanding. However, these same variables were only marginally effective in predicting the success an individual reader would have with an individual test passage.

The two syntactic variables (other than vocabulary load) which correlated most highly with difficulty provided the elements for a subsequent regression analysis based on the criterion passages. The product of this analysis was a prototype formula applicable to technical writing.

The major conclusion to be drawn from this study is that it is feasible to develop a formula which will serve as a means for assessing the readability of technical writing and as a tool for revising technical material to make it more readable. In the initial version of the formula presented here, syntactic length (number of words per sentence) combines with modifier load (density of prenominal modifiers) to account for 47.87 percent of the total variation in passage difficulty. Although not quite as powerful as the recalculated Flesch formula recently endorsed by the Department of Defense for use in the preparation of technical manuals, this prototype formula is fully as accurate as most of the traditional readability formulas.

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DESIGNING A MASTER OF ARTS PROGRAM IN PROFESSIONAL WRITING FOR EMPLOYED ADULTS

Order No. DA8224897

ILFELD, ELLEN MARGARET, A.D. *The University of Michigan*, 1982. 280pp. Chairman: William R. Alexander

There is an increasing need in professional settings for individuals who are skilled communicators, yet there are fewer than twelve Master's level programs in technical or professional writing in the United States. None of these programs is designed for employed adults, who might like further training but can not afford to leave their jobs to return to the campus.

The Whitehead Center for Lifelong Learning, an external degree college of the University of Redlands in California, asked me to design an M.A. in professional writing, to be piloted in Southern California, starting in 1983.

This report documents my research into the field of professional writing, proposes a program design, and offers a resource guide for the faculty and administrators of the proposed program. It is designed to serve as a guide in establishing the M.A. program, and as a discussion of issues involved in planning curricula, for administrators at other schools who are seeking to establish similar programs.

The report includes discussion of: the needs of adult learners; existing M.A. and M.S. programs in professional writing; skills a communicator uses; teaching methodology; program and course design. It presents a thorough discussion of topics covered in the proposed courses, the relation of course structure to learning quality, and several sample syllabi. The Resource Guide includes listings of professional organizations, conferences, journals, and a broad-ranging bibliography of books and articles.

THE EFFECTS OF COOPERATIVE PEER REVIEW ON COLLEGE STUDENTS ENROLLED IN REQUIRED ADVANCED TECHNICAL WRITING COURSES

Order No. DA8419512

JORDAN, MARY KATHERINE, PH.D. *University of Maryland*, 1983. 169pp. Supervisor: Joseph L. McCaleb

The purposes of this study were to investigate the relationship of peer review to writing performance, revision operations, and attitude toward rewriting. The study was conducted at the University of Maryland, College Park, during the fall 1982 semester. One hundred and twenty-eight students taught by five experienced teachers in ten sections of a three credit required professional writing course, Technical Writing, were in groups which were randomly assigned to treatment and control conditions.

The experimental group participated in activities which stressed peer review of drafts, cooperative behaviors, and focused on revision throughout composing. For half (three) of the required papers, students were asked to review their papers in light of the recursive stages of revision. These stages were defined as follows: in-process, editing, peer review, and proofreading.

The peer reviews were directed by a guide assigned to focus on the primary traits of the specific paper. Students were randomly divided into pairs, and using the review guide, wrote an evaluation of the draft, which they returned and discussed with the writer. Guidelines for cooperative groups and behaviors such as helping, praising, checking, and questioning were discussed and incorporated into the reviews.

The control group performed alternate activities. Pretest and posttest researched essays which extended over three class periods to allow time for prewriting, writing, and rewriting, were collected and scored by outside raters, who used the *Diederich Scale for Grading English Composition*, modified.

Further analyses of these essays include a frequency count of revision operations on drafts and revisions, and the scoring of the posttest attitude survey on rewriting. Statistical analyses included the analysis of covariance and the t-test.

Although cooperative peer review could not show significant improvement in writing skills, it did show an increase in the Total number of Revision Operations performed, an increase in the operation of Deletion, as well as an improvement in attitudes towards revision. Suggestions for further research include (1) investigation of the effects of cooperative grouping when student grades depend upon the success of the group; (2) a follow-up study to examine student revision activity and writing performance beyond the parameters of the course.

AN INTERTYPICAL STRATEGY STUDY OF ORGANIZATIONAL COMMUNICATION STRUCTURES

Order No. 8004763

KAPITULA, JOANNE ELIZABETH, PH.D. *Rensselaer Polytechnic Institute*, 1979. 228pp. Supervisor: George A. Barnett

Casual observations of functioning organizations reveal characteristics that include: (1) the acquisition of required resources from an external source, (2) coordinated arrangements of interdependent sub-units, (3) stable and predictable behavior of members, and (4) organizational accomplishments from the combined efforts of the individual members. These characteristics define a state of being 'organized' (Cartwright, 1965).

From theories of sociologists developed over a century ago to the most recent paradigm of organizational research, social scientists have made efforts to account for these characteristics. Repeated efforts to relate conceptual schemes to observable behavior patterns within organizations can lead to a refinement of the conceptualizations and can increase our knowledge of organizations. This thesis is one such effort.

The purpose of the research effort was to test the premise that "the effectiveness of organizations to meet *their* goals is directly dependent upon a communication structure to bring together the activities of the individual members for unified functioning."

Twelve hypotheses were constructed and tested empirically. Personal interviews were conducted with managers of eighty two different organizations to gather data. The data were then evaluated using correlation analysis, regression analysis, ordinary least squares path analysis, two-stage least squares analysis, and maximum likelihood analysis. Results showed support for the hypothesized direct relationship between the communication structure variable of member integration and organizational effectiveness. Causal order was also supported.

Other hypotheses that received support from the data include: the direct relationship between perceptions of external environmental uncertainty and boundary communication, the degree of organizational autonomy and boundary communication. There was a trend toward support of an intermediary function of boundary communication between perceptions of external environmental uncertainty and organizational effectiveness.

This research effort represents exploratory research in one of the newest paradigms of organizational study. The results also indicate the appropriateness of employing an intertypical (heterogenous sample) strategy approach to the study of organizations from a communication structure view.

AN EXPLORATORY ANALYSIS OF INFORMATION USE BY INNOVATIVE, PRODUCTIVE, AND NON-PRODUCTIVE SCIENTISTS AND ENGINEERS

KASPERSON, Conrad John, Ph.D.
Rensselaer Polytechnic Institute, 1976

Supervisor: Robert Krull

Creativity has been the subject of examination from numerous perspectives. These have ranged from creativity as a function of personality traits of the individual, as a situational outcome conditioned by the environment, and as a mental process.

Research on creativity as a personality trait appears to have dubious merit due to the number and variety of traits studied and the suspect nature of many of the instruments which purport to measure individual creativity. Studies of the environment within which the individual functions conclude with the idea that the environment can inhibit creative behavior, but it cannot cause it to occur. The root of the problem is an apparent difficulty in defining just what creativity is.

This study focused on creativity among scientists and engineers. Based on prior research and a theory known as the "associationist position", scientists were viewed as information processors and an examination was made of the information sources used by a sample of practicing scientists and engineers.

Eleven hypotheses were constructed which proposed that creative, or innovative scientists found information more useful than less creative scientists, that it was used more frequently, that it took a wider variety of forms or channels, and that it contained more varied information in terms of subject matter.

To test these ideas, sixty-five scientists were interviewed from two separate organizations --a university and an industrial laboratory. Each subject was evaluated by peers who, under a set of criteria, placed the scientist in one of three categories --innovative and productive; productive, but not innovative; or non-innovative and non-productive. Data was then gathered from the subject concerning information seeking behavior and attitudes.

Each hypothesis was evaluated using a two-way analysis of variance procedure. Results which are significant are: (1) There was no difference between groups in terms of published information sources except for periodicals of original research, where innovative scientists used the source more often and felt it had more utility. (2) People as a source of information were found to be used differently by the three groups. Innovative scientists use cues from other people to access published information more often than other groups -- they seem to have and maintain a well-tuned network. Innovative scientists value people they meet at conventions and conferences more highly than other scientists --again, the notion of a network, or "invisible college". The usefulness of superiors as an information source is considered more useful by non-innovative scientists than by other groups. This holds with earlier studies which found less creative people more impressed by "position power". (3) The range of exposure by subject matter was greater for the innovative scientist, particularly for people as sources of information.

In addition, discriminant analysis was used to develop a predictive function which correctly placed almost 60% of the subjects into the correct production category by using only five variables, all of which dealt with people as information sources.

It was concluded that scientists are information processors, and that creativity, as a mental process, can be explained by the information seeking behavior of the innovative scientist.

Order No. 77-13,710, 187 pages.

FACTORS AFFECTING THE USEFULNESS OF FLOWCHARTS AND OTHER FORMATS FOR COMPUTER PROGRAMS

Order No. 7913077

KLEID, Naomi Ann, Ph.D. Rensselaer Polytechnic Institute, 1978. 333pp. Supervisor: Robert Krull

This paper presents a theoretical model incorporating factors from information theory, communication theory, and expectancy theory. Within the framework of the model, three formats for computer programs -- detailed ANSI flowcharts, Nassi-Shneiderman structured flowcharts, and structured program listings -- are compared in terms of their ability to facilitate the analysis of programmed procedures.

A methodology for measuring the amount of entropy and potential information load in the formats is presented and used as the basis for the program-analysis performance predictions.

The general, nonformat-specific hypotheses are tested using data from 46 programming students, and the specific, format-related performance predictions are evaluated using data from these same students.

Support is cited for several general hypotheses and for the format-complexity measurement methodology.

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AN EFFECTIVENESS MEASURE FOR VISUAL COMMUNICATION MEDIA: TOWARD DEFINITION OF VISUAL PRINCIPLES

Order No. DA8210668

LEWIS, ELAINE MARY, PH.D. *Rensselaer Polytechnic Institute*, 1981. 178pp. Adviser: George A. Barnett

Visual media can be vital tools for communication. Their vitality stems from universal validity and expanding accessibility. For their potential to be fully realized, however, standards for media effectiveness are critical.

This study integrates concepts about visual communication from the diverse fields of design theory, communication systems engineering, and human communication research. The resulting descriptive theory and its evaluative tests are offered as a preliminary foundation of basic research necessary for a science of visual media effectiveness.

This dissertation argues that standards for the quality of visual media can be precisely defined through mathematical modeling. This theoretical definition combines practical insights from visual design with evaluation techniques from systems engineering and social science to yield exemplars for visual displays. These criteria are called Visual Principles.

Visual Principles are standards for media effectiveness. They incorporate both parameters, operationalized in this investigation as form variables, and the structural organization among these parameters, analyzed through multidimensional scaling of variable stimuli. Additional tests discover optimal levels for some variables through causal links with viewer preference. In short, this study proposes a mathematical model that describes cognitively relevant parameters optimized for viewer preference as a standard for visual media effectiveness.

The theory for Visual Principles is explored through four empirical tests: A PRETEST to assess descriptive stimuli for variables; a MULTIDIMENSIONAL ANALYSIS to discover functional relationships among these descriptors; and two VISUAL FORM PREFERENCE TESTS to find optimal levels for some of thes parameters.

Test methodology includes metric multidimensional analysis of ratio scaled subject judgements for graphic pair comparison stimuli and regression analysis for causal models linking viewer preference with visual form variables and other viewer factors. Stimuli for visual form variables were abstract graphic displays. Some time varying variables were illustrated through unique videotape stimuli.

A spatial map of cognitive organization for nine variable descriptors is presented and discussed. Other analyses find a positive, curvilinear functional relationship between viewer preference and one form variable, static complexity.

A STUDY OF PROFESSIONAL AND EXPERIENCED WRITERS REVISING AND EDITING AT THE COMPUTER AND WITH PEN AND PAPER

Order No. DA8329623

LUTZ, JEAN ANN, PH.D. *Rensselaer Polytechnic Institute*, 1983. 428pp. Adviser: S. Michael Halloran

This study uses text processing and pen and paper protocols, a standard method of text analysis, and interviews to explore cognitive strategies involved in making changes in texts. Specific areas of investigation are as follows: differences between revising and editing; differences between writers working at a word processor and with pen and paper; differences between professional and experienced writers; differences between professionals writing on-the-job and professionals in a research context, and differences between writers with experience in the genre of the research and those without experience in this genre.

Seven writers--three experienced teachers of writing and four professionals--provide data for this study. Subjects performed four research tasks and answered questions about each task: They composed and revised a press release at a word processor; edited a press release at a word processor, composed and revised a press release using pen and paper; and edited a press release using pen and paper. Two of the professionals also completed an on-job task and interview.

Statistical analyses (a split-plot factorial ANOVA, Newman-Keuls, and T tests), graphs of interactions and changes, scattergrams, and responses to interviews indicate that, in this study, editing, like revising, ought to be distinguished from routine proofreading activities; that revisers and editors at a word processor do these tasks differently than those who work with pen and paper; that there are no differences between professional and experienced writers or between professionals on-the-job and in a research context; and that differences between writers with and without genre experience suggest that even expert writers may require practice to develop detailed plans for an unfamiliar rhetorical problem. Implications for teaching, pedagogy, and future research are discussed.

ENVIRONMENTAL IMPACT STATEMENTS AND RHETORICAL GENRES: AN APPLICATION OF RHETORICAL THEORY TO TECHNICAL COMMUNICATION

Order No. 8020410

MILLER, CAROLYN RAE, PH.D. *Rensselaer Polytechnic Institute*, 1980. 262pp. Supervisor: S. Michael Halloran

Definitions usually make rhetorical genre a formal or stylistic entity, but if rhetoric is defined as the relationship between intention and effect if symbolic action, rhetoric must be pragmatic, and so must genre. The theory of meaning-as-use suggests that genre can be understood as a large-scale rhetorical action, a kind of cultural artifact that develops with changing cultural patterns. Genre occupies a high position on a hierarchy of meaning-contexts, in which upper levels successively provide metainformation to each substantive level below. At any level in the hierarchy, substance and form combine; the combination acquires pragmatic force when interpretable against a context. The existence of a genre can be determined by examining the substance, form, and context of a class of rhetorical acts. The goal is to determine whether the class exhibits a coherence that would create a culturally rational generic meaning.

Environmental Impact Statements are a class of discourses that make a useful test case for this understanding of genre. These documents, mandated by the National Environmental Policy Act of 1969, are prepared by federal agencies to assess the environmental effect of proposed federal actions. Impact statements have altered governmental decision-making processes and given explicit room in public policy making to a new set of values. However, as a class, these documents have been subjected to much criticism. The main problems have been their length, level of detail, and lack of impartiality.

This study takes as its subject all Environmental Impact Statements, nearly 10,000 of them, but makes no detailed textual analysis. Characteristics of the class are determined from legal and administrative constraints and legal and scientific commentary. The class should not constitute a genre if its members show no significant formal similarities, no recurrent rhetorical situation, or no determinable pragmatic force. Impact statements have considerable similarities of form and substance, mandated by law and by administrative regulations. The situation which requires an impact statement does recur; the relevant situational features are established by law and court decision.

To determine pragmatic force, selected aspects of the substance, form, and context of impact statements are examined in this study. Environmental science, legal terms, and scientific and legal judgments are constituents of the substance; objectivity, quantification, and decision making are constituents of form; and administrative bureaucracy, the environmental movement, and courts of law are aspects of the context. Analysis of these suggests that Environmental Impact Statements are not a rhetorical genre. They have no coherent pragmatic force, for two reasons: (1) the cultural forms in which they are embedded provide conflicting interpretive contexts, and (2) there is no satisfactory fusion of substance and form that can serve as substance to a higher level of the meaning hierarchy. Consequently, the class does not have the internal coherence that would permit successful interpretation as a meaningful rhetorical action. This analysis suggests that there are theory-based rhetorical reasons for the widely noted failures of Environmental Impact Statements as public documents.

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WRITTEN COMMUNICATION AT THE MANAGERIAL AND PROFESSIONAL/TECHNICAL LEVELS: A CASE STUDY

Order No. 8114633

MYERS, MILDRED SOCHATOFF, D.A. *Carnegie-Mellon University*, 1981. 107pp.

This dissertation reports on a study of written communication at the technical/professional and managerial levels in a Fortune-500 corporation. Underlying it is the proposition that managers and executives, who are at the upper levels in organizational hierarchies, have different communications purposes and patterns and, therefore, engage in different forms of discourse, using different rhetorical strategies, than do professional or technical staff such as engineers or financial analysts. This proposition is supported by a body of organizational and communications literature, as well as by the coverage and approach of texts that are frequently used in communications courses.

The purpose of the study was to test the basic proposition by discovering, through rhetorical analyses of documents and interviews with managers and executives, how managerial communication differs from professional or technical communication and what factors account for the differences. Approximately two hundred documents (generated by executives, managers, and professional or technical personnel and all having to do with one project) were selected. The rhetorical analyses included several tests, or classifications, of the data, in order to establish what kinds of writing situations are most frequent for each group, what discourse types (using a model based on those developed by Jakobson, Winterowd, and Kinneavy) and rhetorical strategies (using Aristotle's "proofs") are characteristic of each group, what audiences each group addresses most frequently, and what the interactions are, for each group, between audience addressed and discourse type or rhetorical strategy used.

The rhetorical analyses demonstrated some major differences between the written communications of managers and executives and those of professional or technical employees, differences that were confirmed by the interviews. For example, the great majority of the managerial/executive sample was "descriptive" rather than "analytic," while over half of the professional/technical sample was "analytic," much of it in the form of research reports and problem analyses, which the managerial group almost never did. In addition, one third of the managerial/executive sample involved giving orders or instructions, something professional/technical people did very rarely. Also significant were differences in discourse types (managers and executives used "non-referential" discourse patterns far more often than did the other group) and rhetorical strategies (managers and executives used strategies other than those based purely on logic or reason in over 25 per cent of their writing; the comparable figure for professional/technical staff was only 7 per cent). Finally, the audience analysis showed that 40 per cent of managerial written communication was addressed to subordinates, a situation in which professional or technical people, who have no subordinate corps, did not find themselves.

These analyses identified some distinctive characteristics of managerial communication, raising the question of whether and how the particular communications needs of new or potential managers should be addressed in graduate business schools and in management development programs. Further research, in other types of organizations, is desirable, but there appear to be strong arguments already for incorporating training in specifically managerial communications skills (written and oral) into the existing structure of MBA and other management training programs.

DIFFERENCES BETWEEN TEACHING METHODS AND MATERIALS USED BY ENGLISH TEACHERS WITH VOCATIONAL AND NON-VOCATIONAL STUDENTS

Order No. 8104494

NAWARAT, PARIYA, ED.D. *Mississippi State University*, 1980. 82pp. Director: Dr. W.A. Land

The purpose of this study was to investigate the differences between methods of teaching used by English teachers with vocational and non-vocational students, and to investigate the differences in materials used with both vocational and non-vocational groups of students in grades 10 to 12 in selected high schools in Mississippi.

Subjects of the study were 60 English teachers, 30 of whom were teachers of vocational students and 30 of whom were teachers of non-vocational students in grades 10 to 12 from different counties in Mississippi.

Variables selected for the study were methods of teaching and materials used by the English teachers with both vocational and non-vocational groups of students in grades 10 to 12.

A personalized system of instruction (Fred S. Keller, 1968), "English 3200," was designed to teach applied sentence writing skills to high school students. Using the programmed textbook of the same name (J. S. Blumenthal, *English 3200*, New York: Harcourt, Brace, Jovanovich, 1972), English 3200 was piloted and implemented in a two-phase study during the Summer Session and Fall Quarter, 1979. The project was undertaken at Burris Laboratory School, an academic department in Ball State University Teachers College, to evaluate English 3200 in terms of its exportability to public school settings. A total of 49 high school students from seven Muncie, Indiana, area high schools participated in the study.

Three criteria were identified for determining the exportability of English 3200. First, was the course economically efficient in its use of student and teacher time, space, and materials? Next, was English 3200 effective in teaching grammatical usage in sentence writing? Finally, was the instructional package desirable for exportation to public school settings?

Instructional procedures and materials were developed to maximize the efficiency, effectiveness, and desirability of English 3200. Study guides and alternate forms of unit tests were constructed. Procedures for identifying and utilizing student proctors, for monitoring, stimulating, and assessing student progress, and for general management and operation of English 3200 were delineated and refined. The essential composition was established for English 3200 as an exportable instructional design appropriate to public high school settings.

The process of data gathering ran concurrently with the Pilot and Implementation Phases of English 3200. Pre- and post-tests were administered to assess comprehension and application of grammatical principles. The scores were analyzed in terms of t test ratio and percentage increase. Open-ended student course evaluations were collected following completion of each Phase. Teacher Observation data provided an informal source of observations, events, and comments generated and recorded during the study.

Data from the two-phase study yielded a number of findings. English 3200 was found to be effective in teaching grammatical usage in sentence writing at a .01 level of significance during the Implementation Phase and at a .05 level of significance during the Pilot Phase. Implementation of the course posed no unusual demands on student and teacher time, on financial resources, or on space allocation. The self-pacing aspect of English 3200 made possible more efficient use of student and teacher time. English 3200 was found to be characterized by a number of perceived strengths, including self-pacing, increased student responsibility, and pride of accomplishment.

The exportability of English 3200 to public school settings had been evaluated on the basis of three criteria: economical efficiency, teaching effectiveness, and desirability. English 3200 was shown to be "readily exportable" when evaluated against the three established criteria.

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A VIDEO OBSERVATIONAL STUDY OF THE WRITING PROCESS OF COLLEGE STUDENTS IN A NON-ACADEMIC SITUATION

Order No. DA8316418

NICHOLAS, SUSAN KEHOE, PH.D. *Oakland University*, 1983. 206pp.
Adviser: George E. Coon

Purpose. This investigation addresses three major objectives regarding the writing process in non-academic situations: (1) the identification of heuristics in the writing process that lead to effective communication, (2) the effect of traditional college writing instruction, (3) the effect of skill in writing.

Procedure. Skilled and less-skilled subjects completing either a freshman composition or a business and technical writing class were selected to compose a memorandum addressing an ill-structured, non-academic situation using a think-aloud procedure. Four subjects were selected according to the following criteria: (1) a writing sample analogous to that required in the experimental task to determine writing skill, and (2) subjects' adaptability to the think-aloud procedure. The two target classes from which students were selected both employed a process-oriented approach to writing instruction.

Subjects viewed a videotape which included text, non-text, and mixed modalities to convey the ill-structured nature of the non-academic situation. The subjects participated in a warm-up session directly preceding the writing episode to become familiar with the think-aloud procedure. The writing process of each subject was recorded on a videotape which merged views of the writer's behavior and the text as it was constructed. The resulting memoranda were rated by business executives for adequacy in dealing with the non-academic situation. This evaluation guided the analysis of the writing process data by indicating segments of the protocol where communication heuristics were developed. In the analysis, protocol comments were classified according to plan-making and rhetorical constraint categories.

Findings. The findings of the protocol analysis determined the presence of two major heuristics influencing effective communication in this investigation: (1) plan-operationalizing which enabled the subjects to overcome rhetorical constraints, and (2) inference-making which enabled the subjects to deal with the ambiguities in the information. These heuristics were not found exclusively in either the instructional or skill grouping. This finding suggests that writing performance in non-academic situations may not be satisfied by traditional college instruction in writing and rhetoric. The investigation concludes with implications for college writing instruction and suggestions for writing process research.

WRITE IT FROM THIS ANGLE: AN INDIVIDUALIZED APPROACH TO REPORT-WRITING SKILLS

ODHAM, Elizabeth Williams, Ed.D.
Duke University, 1976

Supervisor: Allan S. Hurlburt

The purposes of this dissertation are as follows: (1) to present a rationale for a self-study guide in technical report writing for students in the community college and (2) to develop such a guide.

The rationale includes four sections. The first section provides an overview of the tripod of the English curriculum: literature, language, and composition. The second section discusses agents of change which have influenced the teaching of English: English conferences, reports, model curricula, and research committees. The third section of this rationale presents the problems within the community college system which seem to dictate a change in the teaching of composition to technical students in the community college. In this section, the writer presents a description of the community college student and of the community college instructor. The writer also discusses the availability and appropriateness of materials for teaching report writing on a level that the student in the community college can understand. The final section demonstrates ways in which the guide enters relatively "unexplored territory" in teaching composition as revealed by experts in the teaching of English. Research indicates that guides in the traditional textbook-based method of instruction are becoming less and less effective in technical education. Authorities state that schools need laboratory-centered instruction. This final part of the rationale describes the guide, Write It from This Angle: An Individualized Approach to Report-Writing Skills, and presents it as one of the approaches to teaching English as advocated by the National Study of High School Programs of English and by the National Study of English in the Junior College.

Write It from This Angle: An Individualized Approach to Report-Writing Skills is a self-study guide for community college students enrolled in technical programs. This guide contains sixteen chapters: I An outline guide for writing the technical report. II The technical report and audience analysis. III The use of the library. IV The bibliography. V The outline. VI Plagiarism. VII The informative abstract. VIII A guide to taking notes. IX From subject choice and limitation to thesis statement. X From thesis statement to completed outline. XI Documentation. XII The use of visual aids. XIII The use of headings in reports. XIV The basic report elements. XV Typing requirements. XVI Submission of the final report (a checklist).

The guide is designed especially for the student who has never engaged in the process of research, for this type of student seems frustrated and unable to follow the instructions given in most technical writing textbooks. The student's feelings of inadequacy is justifiable because most of the technical textbooks are written on a reading level equal to that of the highly specialized student. Because this guide presents the steps of report writing from an individualized approach, it provides for the diverse range in abilities of students who attend the community college or two-year technical institute.

The need for the report writing guide stems from three considerations: the type of community college student enrolled in technical programs, considering the typical ability, goals, age, socioeconomic status, etc.: the type of teacher who teaches report writing to students in the community college enrolled in technical programs; and the paucity of instructional materials available for use in teaching students enrolled in technical writing courses in the community colleges.

When the student successfully completes the guide, he will be able to perform the following tasks: Select a subject appropriate to his chosen curriculum. State the specific problem to be investigated through a process of narrowing the subject. Make a preliminary outline. Make a completed outline. Use the library: Use the Card Catalog: Use various indexes, specifically those relating to the research of the technical writer: Locate materials for the report in the Kardex File, the Card Catalog, the reference shelves, etc. Write a direct quotation note card, a summary note card, and a paraphrased note card. Write the thesis of the report. Document correctly for a research report. Document visual aids (figures and tables). Write the complete report including the basic elements: Title Page; Letter of Transmittal; Summary or Abstract; Introduction; Body: Conclusion; Recommendations; Bibliography: Appendix.

The writer concludes that once the student has mastered the basic research skills in report writing, he will be able to adapt these skills to writing papers in diverse subject areas.

Order No. 77-11,843, 269 pages.

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TEACHING STUDENTS TO REVISE AND PROOFREAD: AN EXPERIMENT WITH TECHNICAL WRITING STUDENTS

Order No. DA8224091

PAVLISIN, PEGGY IRENE, D.A. *Illinois State University*, 1982. 157pp.

This experimental study was concerned with determining the effectiveness of instruction which places emphasis upon revising and proofreading as recursive, discovery steps within the writing process. Specifically, the problem of interest was the effects of required revision and instruction in revising and proofreading techniques compared to the effects of no revision opportunities or direct instruction in revision and proofreading in an equivalent group of technical writing students in a community college.

Two measures were used to compare writing achievement of the two groups: holistic grading and analytical grading. Chi-square tests and two-way analysis of covariance were used to examine between-group differences.

Also of interest were the observable patterns of error which persisted within the experimental group in spite of extensive emphasis upon revision and proofreading. Revising and proofreading habits of both the revision and nonrevision groups were analyzed from a post-experiment questionnaire.

The findings of the study included no significant difference in the writing achievement of the revision group and the nonrevision group when measured on two holistically graded essay assignments and no significant difference between groups when measured analytically by an analysis of error frequency and frequency of the use of embedded structures in sentences. Analysis of five technical writing assignments from the revision group revealed that "A" and "B" students completed revisions in higher proportions than did average and below average students. Delaying of grades until after revision did not serve as a motivating influence for weaker students. The frequency of the two most prevalent types of errors (run-ons and punctuation and capitalization errors) decreased from the beginning to the end of the experiment, an effect attributed to personal error analysis, applied grammar instruction, and sentence combining instruction. The post-experiment questionnaire revealed no statistical difference between the revising and proofreading habits of the revision and nonrevision groups.

THE RELATIONSHIP BETWEEN RHETORICAL AND SCIENTIFIC DISCOVERY

Order No. 8200470

RAGONNET, JAMES LAWRENCE, PH.D. *Rensselaer Polytechnic Institute*, 1981. 257pp. Supervisor: Charles L. Sanford

This study asks whether the discovery techniques of science are applicable and useful to rhetorical invention, the art of discovering the subject matter of discourse. The close connection between rhetorical and scientific discovery suggests a strong and reasonable basis for developing heuristic procedures common to both disciplines.

Scientific discovery--consisting of the dual process of scientific method and creative intuition--shares values, thought, and methods with the discovery process of composition. The scientist and the writer both perform the same investigative act of observing, hypothesizing, and formulating. Ideally, the scientist and the writer, participating in a rigorous discovery process, must ascertain the truth in a universe of change and diversity, must scrupulously maintain the habit of truth, and must appeal to an ethical, "universal" audience for consensual approval.

The pre-writing or discovery phase of composition--consisting of selecting a topic, formulating a thesis, and gathering supporting data--closely approximates the Baconian method of observation, hypothesis, and experiment. The creative mechanisms or heuristics of the scientist--called here "Copernican Shifts," "Watsonian Models," "Mendeleevian Patterns and Anomalies," and "Einsteinian Connections"--lend themselves to the discovery process of the writer in each of the discourses. In brief, both the formal method and the creative intuition of the scientist's discovery process can be applied to the discovery process of the writer.

Very briefly, the study is structured as follows.

Chapter I introduces rhetorical invention and synopsizes the work of scholars in diverse disciplines contributing to the growing research on discovery procedures.

Chapter II analyzes Plato's *Phaedrus* in order to establish a sound and traditional groundwork for viewing rhetoric as a process of "knowing" or "discovering" the truth.

Chapter III analyzes the writings of scientist, Jacob Bronowski, who views science as a process or a "language" of moral discovery. Like Plato, Bronowski insists upon the habit of truth. In Bronowski and Plato one can view science and rhetoric as twin paradigms of moral discovery.

Chapter IV, expanding the scope of scientific discovery, analyzes the discovery theories of N. R. Hanson, Thomas Kuhn, Arthur Koestler, and Richard Blackwell. An examination of these theorists, as well as W. J. J. Gordon, S. Toulmin, D. W. Theobald, Bronowski, G. Polya, and others, strongly suggests a fundamental relationship between scientific discovery and metaphorical thought.

Chapter V, applying the morals, thought, and methods of scientific discovery to rhetorical invention, begins by demonstrating how the ethics of both science and rhetoric are guided and safeguarded by a scrupulous, "universal" audience. The thought of scientific discovery--namely common-sense knowledge and scientific knowledge as defined by E. Nagel and B. J. F. Lonergan--is applied to the writer. The dual method of scientific discovery, both the scientific method and the mechanisms of creative intuition, are explained and related to the discovery process of the writer. A brief appendix illustrates these scientific discovery methods in specific composition topics for each of the discourses.

The basic claim of this study is to suggest an important and useful connection between rhetorical and scientific discovery.

REVISION PRACTICES OF PROFESSIONAL WRITERS

Order No. DA8400632

SMITH, LEONORA HARRIS, PH.D. *Michigan State University*, 1983. 382pp.

Current composition theory suggests that amount and type of rewriting distinguish students from professionals, yet little research has been done on the revision practices of skilled writers under normal working conditions. This study combined interviews with analysis of successive drafts of thirty texts (fiction, poetry and non-fiction) to describe the revision processes of two versatile, well-published writers, Albert Drake and Lee Upton.

Notable features are (1) importance of early drafts in creating a context which focuses the writer's attention, embodies external features and intentions in unique configurations, and cues and controls preservation and change; and (2) physicality of revision--i.e., the writers began new drafts when they could no longer 'see', indicating complex relationships between perception and production. Revisions are cued not only by propositional meaning, but also by visual and auditory properties of the texts. Other influences on revision are writers' aesthetics, 'interestingness', and external sources.

Though the writers' revision processes were multi-layered and recursive, they were also progressive. While the type of revisions and their effects varied from text to text, the study identified an underlying three- and sometimes four-stage process.

In stage one, writers established structural features, to which they added and adjusted in stage two. In stage three, they corrected, changed format, and established final form. Unexpected meaning sometimes emerged in a variable 'discovery' stage. These stages were not strictly linear, since different parts of texts were often at different stages, but shifts in proportions of revisions from draft to draft, and a three-draft minimum suggest an obligatory order in which the writers established necessary features of a text--language, structure, and external form. The complexity of the writing task requires selective attention to different features at different points in the work.

Results suggest that routinized 'form first' tasks allow writers to combine stages, but the more variability the work allows, the more selective attention must be and the more distinct the stages. The conclusion discusses educational implications and suggests future research combining exegesis with coding of specific revisions.

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A STUDY OF THE INFLUENCES OF AUDIENCE AND PURPOSE ON THE COMPOSING PROCESSES OF PROFESSIONALS

Order No. 8200472

STALNAKER, BONNY JEAN, PH.D. *Rensselaer Polytechnic Institute*, 1981. 181pp. Supervisor: S. M. Halloran

Communication strategists since Aristotle have advised that an effective speaker or writer designs communication with audience and purpose in mind. In this study, professional engineers, managers, and scientists--writing for their jobs--have demonstrated that awareness of audience and purpose guides their composing from beginning to end during production of discourse.

Literature from composition theory, cognitive psychology, and rhetorical theory provided the background for the study's theoretical framework. For example, this literature shows that skilled student writers develop representations of their writing tasks more precisely than unskilled writers do. These representations, in conjunction with hierarchically organized systems of cognitive processes, enable writers to produce effective discourse. Success in composing, then, may depend on writer's abilities to perceive the demands of rhetorical situations and to manipulate cognitive processes and physical behavior to meet those demands.

Using the cognitive process model of composing developed by Flower and Hayes, this study examines when and how audience and purpose affect choices made during composing--discovering ideas, organizing topics, generating discourse, and translating discourse for readers. The study includes an analysis of two samples of discourse from four volunteer subjects, who wrote the memos and reports for their jobs. The samples were interpreted using a combination of investigative techniques: coding behaviors, interviewing subjects, and analyzing tapes of their composing aloud.

The results show that the writers use schemas stored in memory, of previous writing tasks and of prior written and oral communications with the reader, to develop a representation of the rhetorical problem through which they can both meet the needs of their readers and accomplish their own purposes. Each writing task involves a rhetorical situation with a range of complexity from which the writer must select to define the rhetorical problem. As part of this process, writers cast their readers in roles based on their perceptions of the readers' character traits, attitudes toward the topic of discourse, and attitudes toward writing. For most aspects of writing, the subjects in this study depended on their perceptions of audience and purpose to determine their choices. These results provide the basis for a new model of rhetorical situation, incorporating the dimensions of complexity, amorphousness, and typicality.

A CONCEPTUALIZED ROLE OF ATTITUDES, NEEDS, AND ENVIRONMENTAL STIMULI IN HUMAN RESPONSES TO COMMUNICATION

Order No. DA8321220

WILKINS, KEITH ALBERT, PH D *Rensselaer Polytechnic Institute*, 1983 180pp Adviser: Robert Krull

The interrelationships among an individual's needs, perceived environment, and attitude components of cognition, affect, and behavior are explored in an effort to lend efficacy to the creation of attitude change communications. Three attitude change theories are reviewed and their weaknesses and areas of vagueness described. A conceptual approach incorporating the selected variables of needs, perceived environment, and attitude components is developed. This approach is applied to each of the attitude theories reviewed in order to demonstrate the applicability of the approach to such theories and to show how, had the approach been incorporated in the original theories, it could have reduced some of the described weaknesses and areas of vagueness.

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